

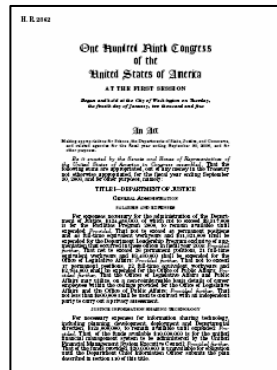
FY 2009 Budget



February 4, 2008



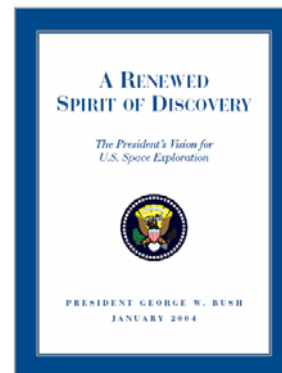
Key Governance Documents



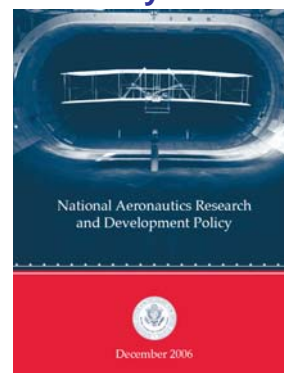
**National Aeronautics
& Space
Act of 1958
P.L. 85-568
July 1958**

**NASA Authorization Act
P.L. 109-155
December 2005**

Annual Appropriations



**Presidential Policy Directive
Vision for Space Exploration
January 2004**



**National Aeronautics
R&D Policy
December 2006**



**NASA Strategic Plan
February 2006**



**National Academy
of Sciences Reports**



Annual Budget Requests

NASA implements a balanced portfolio of space exploration, Earth and space science, and aeronautics research programs within the resources provided.



FY2009 Budget Request Summary

\$ In millions	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
TOTAL NASA	17,309	17,614	18,026	18,460	18,905	19,359
Percent change year-to-year		2.9% *	2.3%	2.4%	2.4%	2.4%

* 192.5M rescission effectively reduces FY08 budget to \$17,117M

NASA's FY 2009 budget demonstrates the President's commitment to our Nation's leadership in space and aeronautics research. FY 2009 budget is a 2.9% increase from the FY 2008 enacted budget less rescission.

The FY 2009 budget:

- Meets commitments to International Partners in completing the ISS assembly with Space Shuttle
- Pursues development of commercial cargo and crew transportation service capabilities to support ISS operations, with \$2.6 billion available over 5 years to purchase such services
- Retires Shuttle no later than October 2010
- Maintains Initial Operational Capability for Orion Crew Exploration Vehicle and Ares I Crew Launch Vehicle by March 2015, though NASA strives to bring Orion/Ares I on-line sooner
- Provides \$910M over 5 years for development of high-priority Earth Science missions from National Academies Decadal Survey and an additional \$344M over 5 years for Lunar Science missions
- Balances needs and budget priorities between NASA's programs, while maintaining ten healthy centers

NASA is on track and making progress. No strategic changes in the FY 2009 budget request.

- Five Space Shuttle missions planned for 2008, to continue ISS assembly of the European and Japanese Labs, and to service the Hubble Space Telescope
- Orion CEV and Ares I CLV contracts in place, Preliminary Design Review in late 2008 and Ares I-X demonstration flight in FY 2009
- NASA's Aeronautics Research is aligned with the National Aeronautics R&D Policy and the National Plan for Aeronautics R&D and Related Infrastructure
- 15 science launches by the end of FY 2009, adding to the 55 Science missions currently in operations.
- Initiating a host of new Science missions and supports important Science R&A increases

New Account Structure: In accordance with the FY 2008 Appropriation Act, NASA is submitting the FY 2009 request in a new structure: Science, Aeronautics, Exploration, Space Operations, Education, Cross Agency Support and IG.



Account Restructure

FY08 Enacted	\$ In Millions
10,543.0	Exploration, Science, & Aeronautics
5,546.8	SCIENCE
1,535.6	Earth Science
1,397.8	Planetary Science
1,590.8	Astrophysics
1,022.7	Heliophysics
3,821.1	EXPLORATION SYSTEMS
3,013.6	Constellation Systems
807.5	Advanced Capabilities
621.9	AERONAUTICS RESEARCH
553.2	Cross-Agency Support
176.8	Education
82.0	Advanced Business Systems
178.5	Innovative Partnerships
33.1	Shared Capabilities
82.8	Congressional Projects
6,733.7	Exploration Capabilities
6,733.7	SPACE OPERATIONS
3,981.1	Space Shuttle
2,209.5	Space Station
543.1	Space & Flight Support
32.6	Inspector General
17,309.4	TOTAL NASA

2,013.0 Center Management and Ops [non-add]
 588.8 Corporate G&A [non-add]
 319.7 Institutional Investments [non-add]

\$ In Millions	FY08 Enacted	FY09 Request
SCIENCE	4,706.2	4,441.5
Earth Science	1,280.3	1,367.5
Planetary Science	1,247.5	1,334.2
Astrophysics	1,337.5	1,162.5
Heliophysics	840.9	577.3
AERONAUTICS	511.7	446.5
EXPLORATION	3,143.0	3,500.5
Constellation Systems	2471.9	3,048.2
Advanced Capabilities	671.1	452.3
SPACE OPERATIONS	5,526.2	5,774.7
Space Shuttle	3,266.7	2,981.7
Space Station	1,813.2	2,060.2
Space & Flight Support	446.3	732.8
EDUCATION	146.8	115.6
CROSS-AGENCY SUPPORT	3,242.9	3,299.9
Center Management and Ops	2,013.0	2,045.6
Agency Management and Ops	830.2	945.6
Institutional Investments	319.7	308.7
Congressional Projects	80.0	
Inspector General	32.6	35.5
TOTAL NASA	17,309.4	17,614.2



FY 2009 Budget Request

Budget Authority, \$ in millions							
By appropriation account							
By Theme	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Science	\$4,609.9	\$4,706.2	\$4,441.5	\$4,482.0	\$4,534.9	\$4,643.4	\$4,761.6
Earth Science	\$1,198.5	\$1,280.3	\$1,367.5	\$1,350.7	\$1,250.9	\$1,264.4	\$1,290.3
Planetary Science	\$1,215.6	\$1,247.5	\$1,334.2	\$1,410.1	\$1,537.5	\$1,570.0	\$1,608.7
Astrophysics	\$1,365.0	\$1,337.5	\$1,162.5	\$1,122.4	\$1,057.1	\$1,067.7	\$1,116.0
Heliophysics	\$830.8	\$840.9	\$577.3 *	\$598.9	\$689.4	\$741.2	\$746.6
Aeronautics	\$593.8	\$511.7	\$446.5	\$447.5	\$452.4	\$456.7	\$467.7
Exploration	\$2,869.8	\$3,143.1	\$3,500.5	\$3,737.7	\$7,048.2	\$7,116.8	\$7,666.8
Constellation Systems	\$2,114.7	\$2,471.9	\$3,048.2	\$3,252.8	\$6,479.5	\$6,521.4	\$7,080.5
Advanced Capabilities	\$755.1	\$671.1	\$452.3	\$484.9	\$568.7	\$595.5	\$586.3
Space Operations	\$5,113.5	\$5,526.2	\$5,774.7	\$5,872.8	\$2,900.1	\$3,089.9	\$2,788.5
Space Shuttle	\$3,315.3	\$3,266.7	\$2,981.7	\$2,983.7	\$95.7	\$0.0	\$0.0
International Space Station	\$1,469.0	\$1,813.2	\$2,060.2	\$2,277.0	\$2,176.4	\$2,448.2	\$2,143.1
Space and Flight Support (SFS)	\$329.2	\$446.3	\$732.8 *	\$612.1	\$628.0	\$641.7	\$645.4
Education	\$115.9	\$146.8	\$115.6	\$126.1	\$123.8	\$123.8	\$123.8
Cross-Agency Support	\$2,949.9	\$3,242.9	\$3,299.9	\$3,323.9	\$3,363.7	\$3,436.1	\$3,511.3
Center Management and Operations	\$1,754.9	\$2,013.0	\$2,045.6	\$2,046.7	\$2,088.0	\$2,155.3	\$2,211.6
Agency Management and Operations	\$971.2	\$830.2	\$945.6	\$945.5	\$939.8	\$950.5	\$961.3
Institutional Investments	\$223.8	\$319.7	\$308.7	\$331.7	\$335.9	\$330.4	\$338.3
Congressionally Directed Items	\$0.0	\$80.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Inspector General	\$32.2	\$32.6	\$35.5	\$36.4	\$37.3	\$38.3	\$39.2
FY08 Rescission**		(\$192.5)					
NASA FY 2009	\$16,285.0	\$17,116.9	\$17,614.2	\$18,026.3	\$18,460.4	\$18,905.0	\$19,358.8
Year to Year Change		5.1%	2.9%	2.3%	2.4%	2.4%	2.4%

Budgets include all direct costs required to execute the programs. Indirect costs are now budgeted within Cross-Agency Support.

* Deep Space and Near Earth Networks Transfer (\$256M) to SFS in FY 2009

** FY08 Appropriation rescinded \$192.475M in prior-year unobligated balances, effectively reducing FY 2008 authority.

FY08 budgets are the enacted levels per the Agency's FY 2009 Budget Estimates. Totals may not add due to rounding



Highlights of FY 2009 Budget Request

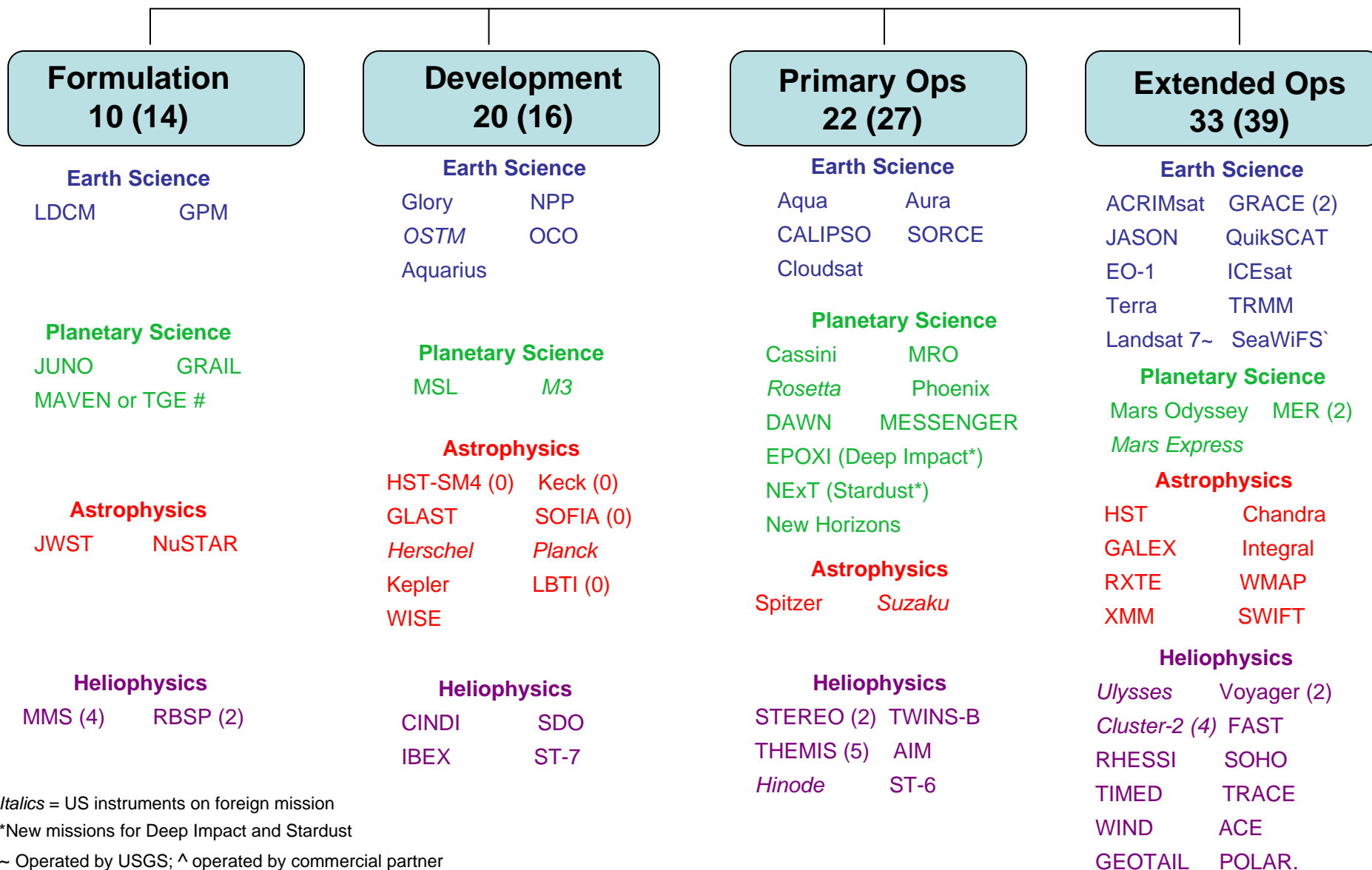
Science -- \$4,441.5M

- Includes \$910M over five years to develop Earth Decadal Missions initiating 5 Earth Decadal Survey missions for launch by 2020, including SMAP and ICESat-II.
- Adds \$344M to Lunar Science for three small lunar science missions by 2014.
- Focuses Mars Program after 2013 on sample return mission to launch by 2020.
- Initiates ~\$2B (of NASA funds) for outer planets flagship mission in FY 2009 for launch by 2017.
- Increases funds for research and analysis, leveraging NASA's spacecraft investment. Also funds 55 currently operating missions, including 13 extensions.
- Initiates the Joint Dark Energy Mission in FY 2009.
- Refocuses Explorer flight program on small satellites and missions of opportunity.
- Revitalizes suborbital flight programs, increasing flight rates and science return.
- Transfers \$256M for Deep Space and Near Earth Networks from Heliophysics to Space Operations, integrating budget and management responsibilities for NASA's space communications efforts.
- Funds Solar Probe mission in Heliophysics.



85 Science Missions (98 Spacecraft) in Development or Operations

(Does not include missions in pre-formulation, including FY09 starts)



Italics = US instruments on foreign mission

*New missions for Deep Impact and Stardust

~ Operated by USGS; ^ operated by commercial partner

Mars Scout-2 mission; select one of two in mid-2008

As of Feb 4, 2008



Highlights of FY 2009 Budget Request

Aeronautics -- \$446.5M

- **Continues innovative fundamental research for the Next Generation Air Transportation System (NextGen) in partnership with the member agencies of the Joint Planning and Development Office.**
 - environmental challenges (noise, emissions and fuel burn)
 - safety challenges (future aircraft and the future airspace system)
 - capacity challenges (advanced air traffic management concepts)
 - subsonic fixed wing, rotary wing, and supersonic aircraft
- **Research is aligned with the *National Plan for Aeronautics R&D and Related Infrastructure*, approved by the President in December 2007 which establishes high-priority national aeronautics R&D challenges, goals, and time-phased objectives.**
- **Continues foundational and multidisciplinary research to enable air-breathing access to space and entry into planetary atmospheres.**
- **Continues developing the nation's world-class aeronautics expertise**
- **\$72M in NASA Research Announcement Awards planned for FY 2009**



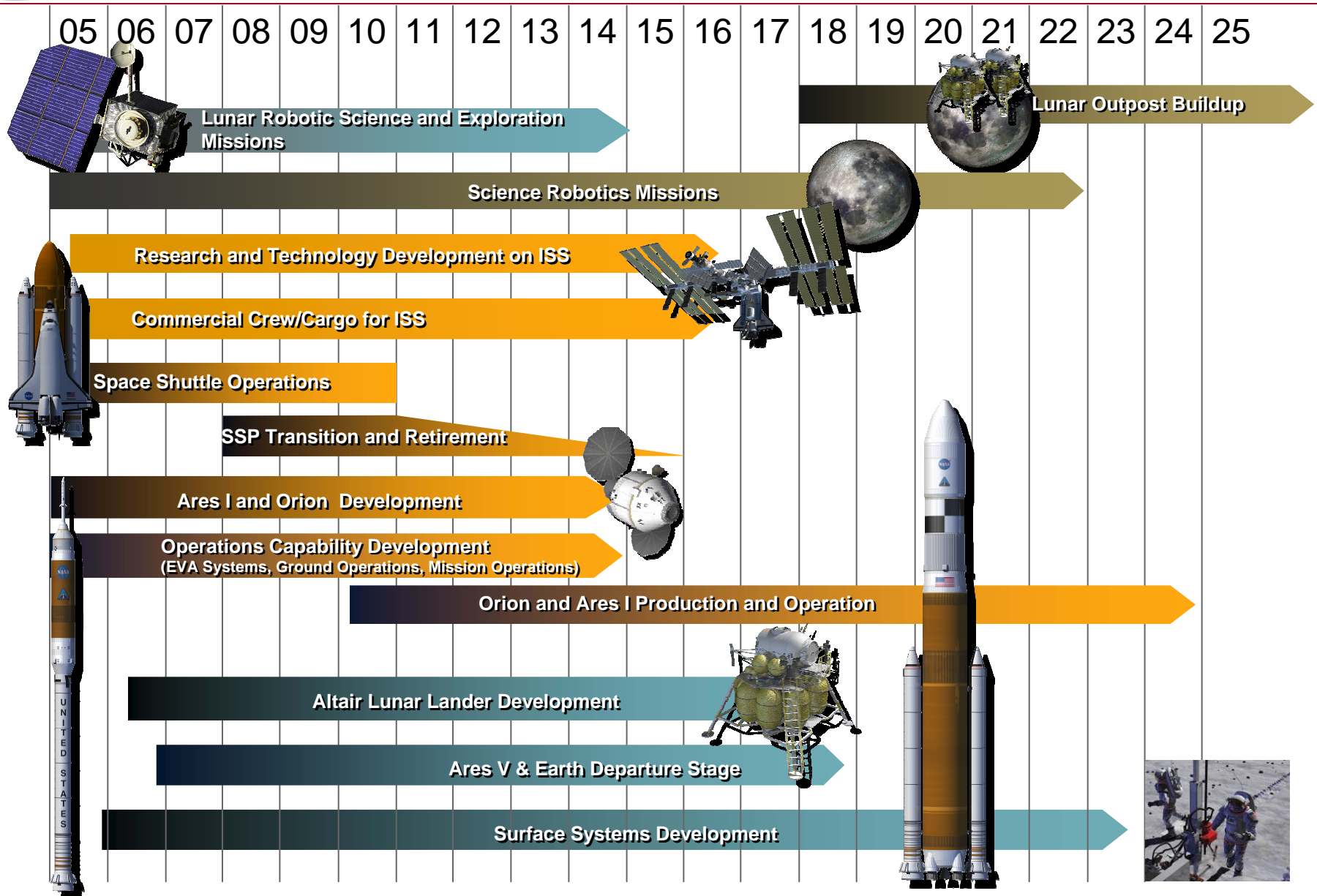
Highlights of FY 2009 Budget Request

Exploration Systems -- \$3,500.5M

- **Orion/Ares I Initial Operational Capability in March 2015 and Full Operational Capability in FY 2016**
 - NASA continues to strive to bring Orion/Ares I on line sooner
 - Three Ares I flight tests prior to initial capability
 - Ares I-X test from Pad B in Spring 2009
 - Two Orion/Ares I test flights with crew prior to full capability.
- **Hardware tests have begun**
 - Ares I upper stage engine, J2X Power Pack #1 Hot Fire: Jan 31, 2008
 - Launch Pad Abort Test: Sep 2008 at White Sands Test Facility
- **Lunar Reconnaissance Orbiter/LCROSS on track for late 2008 launch.**
- **Fully funds \$500M commitment for Commercial Orbital Transportation Services demonstrations.**
- **Starts development of Ares V and Altair Lunar Lander in FY 2011 to return astronauts to the Moon by 2020.**



Exploration Roadmap





Highlights of FY 2009 Budget Request

Space Operations -- \$5,774.7M

- **11 Shuttle launches through FY 2010 (10 ISS assembly flights plus a Hubble servicing mission)**
 - Up to 2 additional ISS contingency flights may occur if they can be safely flown before October 2010
 - Includes personnel severance and retention costs through last flight.
 - Shuttle retirement and transition planning continues, however, the specific requirements and budget estimates for Shuttle retirement after FY 2010 are too immature to be incorporated.
- **Pad B turned over to Constellation at the end of 2008 for Ares I modifications.**
- **US segment of the International Space Station is essentially complete. European and Japanese labs are added in FY 2008, and in FY 2009, we expand the ISS crew to 6 astronauts/cosmonauts to fully use the ISS as both a National Laboratory and a testbed for future human exploration.**
- **Eight planned launches of NASA payloads on expendable launch vehicles in FY 2009.**
- **Consolidates Deep Space, Near-Earth, and Space communications networks into a centrally-managed unified space communications and navigation architecture within Space Operations.**
 - Awarded contract for two new TDRS satellites for delivery in 2012, 2013.
 - Planning continues for upgrade of NASA's integrated communications network



Challenges Ahead

- **NASA's Greatest Challenge: Safely flying the Space Shuttle to assemble the International Space Station and honor our commitments to our partners prior to retiring the Shuttle in 2010, while bringing new human spaceflight capabilities on-line by 2015 or sooner.**
- **Space Shuttle Retirement and Transition to Constellation**
 - Preserving the skilled Shuttle workforce necessary to fly through retirement, especially as vendors complete their final deliveries, and transitioning key elements of the highly-skilled engineering and technician workforce to support the new Exploration systems
 - Fully understanding Space Shuttle retirement costs, including the disposition of Shuttle facilities and equipment. Congressional authorization for Agency-wide Enhanced Use Leases starting in January 2009 will help defray NASA costs.
 - Supporting the International Space Station following the retirement of the Space Shuttle, especially purchasing crew and cargo transport services.
 - NASA is preparing a package of legislative provisions to help in the transition from the Space Shuttle to the new Constellation Systems.
- **Affordable, Executable, World-Class Missions**
 - Consistent with the priorities from the National Academy of Sciences' Decadal Surveys
 - Requires thorough understanding of technical requirements with credible cost estimates
 - Requires sufficient life-cycle budget for currently planned missions with sufficient management reserves for unforeseen technical challenges, while avoiding over-committing to new initiatives
 - Requires strong program management committed to controlling costs